

UHS RSCH ICU Neurosurgical Prompt Cards - ICP Management

ICP ≥ 22 mmHg for ≥ 5 minutes

ICP ≥ 22 mmHg

Tier 1:
Mandatory.
Move to Tier 2
if targets not met
within 60 minutes.

- Assess sedation and analgesia
- Ensure CPP 60-70 mmHg
- Ensure PaCO₂ 4.7-5.3 kPa
- Consider osmotherapy
- Consider EVD / Drain CSF

See Inter-tier Recommendations*

Tier 2:
Move to Tier 3
if targets not met
within 60 minutes.

- Recommend neuromuscular blockade

See Inter-tier Recommendations*
And Optional MAP Challenge#

Tier 3

- Consider raising CPP if MAP Challenge successful
- Consider barbiturate coma
- Consider surgical decompression
- Consider mild hypothermia (35-36°C)
- Consider titrating ventilator to achieve PaCO₂ 4.3-4.7 kPa (short duration only and if effective at lowering ICP)

If parameters are stable for 4 hours,
de-escalate care:

reduce CPP to baseline values and
assess.

*** Inter-tier recommendations:**
Always consider

- Re-examine the patient and consider repeat CT to re-evaluate intracranial pathology
- Reconsider surgical options for potentially surgical lesions
- Consider extracranial causes of ICP elevation
- Review that basic physiologic parameters are in desired range (e.g. CPP, blood gas values)
- Consider consultation with higher level of care if applicable for your health care system

Optional MAP Challenge:

Perform MAP Challenge to assess cerebral autoregulation and guide MAP and CPP goals in individual patients

- Perform under direct supervision of a physician who can assess response and ensure safety
- No other therapeutic adjustments (i.e. sedation) should be performed during MAP Challenge
- Initiate or titrate vasopressors or inotrope to increase MAP by 10 mmHg for not more than 20 minutes
- Monitor and record key parameters (MAP, CPP and ICP) before, during and after the Challenge
- If ICP improves with Challenge, consider higher CPP range (maximum MAP 110 mmHg)
- If no improvement, return vasopressor/inotrope dose to pre-test dose upon completion

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Updated 2022: JP & MP

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Raised ICP troubleshooting

If ICP > 22mmHg, inform Nurse In Charge and carry out checks below

- Check pupils – **report any changes to neurosurgeons urgently**
- Ensure PaCO₂ in target range for current tier of therapy (see chart above)
- Maintain 30 degree head elevation – *may not be possible with spinal injury, seek advice if needed*
- Ensure aligned, upright body position in bed: avoiding extension/flexion of neck or hips
- Use anchorfast ETT device to prevent impeded venous drainage from head. If wearing cervical collar – discuss with Nurse In Charge/neurosurgeon as this may need to be loosened or removed
- Check adequate sedation: aim RASS -4. If BIS used, aim BIS 20-30
- Paralysis may be considered as per tiers of therapy (below)
- **IF ICP >22mmHg sustained for more than 5 minutes, inform ITU Doctors urgently**

Additional measures may be needed:

- Prepare for transfer to CT scanner
- Prepare to administer osmotic therapies